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## Evaluation of the impact of differential controlled sieving process on cytoprotective and antioxidant activities of ivy (*Hedera helix*) and figwort (*Scrophularia nodosa*)

Rachid Soulimani, N Soualeh, A Stievenard, A Dicko, E Baudelaire and J Bouayed University of Lorraine, France

Extraction of bioactive compounds from plants is often performed using organic solvents that may have a toxic effect on human health and lead to environmental pollution. Recently, a new ecological process for extracting natural active compounds according to their granulometric size called Differential Controlled Sieving Process (DCSP) was invented by Agritech (France, Baudelaire, 2013). To validate this technological process, two medicinal plants named ivy (*Hedera helix*) and figwort (*Scrophularia nodosa*) were used to assess the effect of DCSP on their well-known pharmacological properties including their cytoprotective and antioxidant potentials. To this end, powders from ivy leaves and figwort aerial parts (20 to 500  $\mu$ m of particle size) were obtained by DCSP. Hydro-alcoholic Extracts (HE) of plants were prepared and used as control. Moreover, mouse spleen cells were isolated and the cytotoxicity of all plant preparations (granulometric fractions and HE) was checked by MTT assay at different concentrations. Finally, the intracellular levels of different oxidative markers (ROS, MDA, SOD, CAT and GPx) were measured. For both plants, neither fractions nor extracts exerted a cytotoxic effect on splenocytes. Only granulometric fractions ranging from 50 to 315  $\mu$ m exhibited an antioxidant effect that was significantly higher than HE. These results were consistent with chemical analyses showing higher content of some main active compounds of ivy ( $\alpha$ -hederin and hederasaponin-C) and figwort (iridoid glycosides) in the same granulometric classes, compared to their HE. These data suggest that DCSP improves the biological activities of ivy and figwort and leads to a differential distribution of bioactive compounds.

## **Biography**

Rachid Soulimani is the President of AGRESS association, responsible of "Neurodevtox" anr/europe-feder program, responsible of "Arf Tempus, Europe/Tempus program, header of Research Team Neurotoxicology and Development /Inra, University of Lorraine, France.

rachid.soulimani@univ-lorraine.fr

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